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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,524	01/03/2001	Kazuyuki Nishi	44084-484	9990

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EXAMINER

KORNAKOV, MICHAEL

ART UNIT PAPER NUMBER

1746

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,524

Applicant(s)

NISHI, KAZUYUKI

Examiner

Michael Kornakov

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-18 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,9,10,12,13 and 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,8,11 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-6 and 8-18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/14/2004 has been entered.
2. Claims 1-6, 8-18 currently pending. Claims 2,3,9,10,12,13, and 15-18 are withdrawn from consideration. **Claims 1, 4-6, 8, 11 and 14 are examined on the merits.**
3. Claims 1 and 5 have been amended to identify a solution of intermediate washing step as alcohol.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1, 6, 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi (U.S. 5,868,864), which is an English equivalent of JP 9-208995, published 08/1997 in view of Sherman "Emulsion Science" (Handbook), Academic Press, 1988 page 150.

Nishi discloses a method for washing an object, such as an optical element, which steps are best depicted by claims 11 and 17 in col.9, namely: first, dipping the

object to be washed in a lipophilic (*non-aqueous*) agent, **second**, dipping the object to be washed in an emulsifier, **third**, dipping the object to be washed in a detergent, **fourth**, dipping the object to be washed in water. The lipophilic agent in Nishi is ethylene or a similar substance, such as tetrachloroethylene, perchloroethylene (paragraph, bridging col.2 and col.3), which reads on "a non-aqueous hydrocarbon solution " of the instant claims 1 and 6.

The instantly recited "intermediate washing process" of the instant claim 1 corresponds to the second/third washing steps of Nishi. Nishi does not specifically recognize the use of alcohol, as per claim 1 and, in particular, isopropyl alcohol, as per claim 8, in his second/third washing steps.

However, in these steps Nishi discloses washing the optical object in the emulsifier and detergent for **substituting and replacing the hydrocarbon (lipophilic) wash with water wash**. It should be pointed out here that Nishi does not provide any specificity regarding the nature of detergent/emulsifier and therefore, it is motivated by Nishi that detergent/emulsifier is the substance, having solubility in both lipophilic and hydrophilic phases (see, for example Fig.2, especially col.3, lines 5-11).

Sherman provides Table VI on page 150 of **surface active agents** having specific values of HLB (hydrophilic lipophilic balance), among which are such **alcohols** as n-propanol and n- butanol, the compounds having average HLB values. Therefore, a person skilled in the art clearly motivated by the suggestions of Nishi, as to the purpose of substituting wash, would have found it obvious to utilize one of alcohols of Sherman

as the detergent/surface active agent in the method of Nishi based on its solubility in both phases.

Therefore, the limitations of claim 1 are prima facie obvious over Nishi/Sherman.

With regard to the iso-propanol of the instant claim 8, vs. n-propanol, cited in Shermans Table VI it is noted that these compounds are the only two possible structural isomers of each other, and therefore have the same composition, but different three dimensional arrangement. Structural similarities have been found to support a prima facie case of obviousness. See, e.g., *In re Wilder* 563 F.2d 457, 460, 195 USPQ 426, 429 (CCPA 1977) (adjacent homologs and structural isomers). Therefore, based on essential chemical identity of isopropanol and n-propanol, a person skilled in the art would have found obvious that these two compounds provide essentially identical functionality as detergent/surface active agents.

7. Claim 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi/Sherman in view of JP 05266412.

Nishi is silent about ultrasonic agitation of a non-aqueous solution, as per claim 11.

Ultrasonic agitation of cleaning liquids, both organic solvents and aqueous solutions, is routinely utilized in cleaning processes, which is evidenced, for example, by JP'412, that teaches cleaning process for objects dipped into an ultrasonic tank, containing organic solvent, to wash them in the presence of ultrasonic wave and finally to clean with vapor of the organic solvent (See Abstract). Therefore, a person skilled in

the art would have found it obvious to utilize the ultrasonic agitation of organic solvent in the non- aqueous step of Nishi in order to enhance the contact of the solvent with the object and, thus, to increase the effectiveness of cleaning.

8. Claims 4 and 5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi/Sherman in view of Osano et al (U.S. 5,334,258).

The teaching of Nishi is different from instant claims 4 and 5 by not disclosing the drying step between the intermediate and water washing step.

Osano discloses a washing method of optical article, which is closely related to the method of Nishi and to the instantly claimed method. Practically Osano performs the same steps, and the reference to Osano provides the motivation to utilize the drying step as instantly claimed by teaching that the action of the washing liquid surface tension causes the washing liquid to stay on the object resulting in defective washing, and a reduction of rinsing effect (col.2, lines 35-40). Since Osano and Nishi both disclose analogous cleaning processes of optical parts using similar process steps, a person skilled in the art, motivated by teaching of Osano, would have found obvious to perform drying between the detergent (left intermediate) and aqueous steps of Nishi in order to enhance removal of residues, after the intermediate step and ensure the effectiveness of subsequent rinsing. The skilled artisan would also have reasonably expected that the use of isopropanol vapor is beneficial for such purpose, since the use of isopropanol is provided by combining teaching of Nishi/Sherman, and by employing it in the drying step, one skilled in the art would have avoided additional chemicals and

therefore additional contaminants in the process, and will thus arrive at the instant claims 4 and 5.

Response to Arguments

9. Applicant's arguments filed April 20, 2004 have been fully considered but they are not persuasive.

The crux of Applicants' arguments is that Nishi does not disclose the intermediate washing process using alcohol. In addition, Applicants argue that Sherman "Emulsion Science" merely discloses HLB values. According to Applicants the washing process recited in amended independent claim 1 eliminates problems arising when an object to be washed is washed in an aqueous solution after greasy stains have been removed using a nonaqueous solution "and a new material used in the washing process is not invented". More specifically, a feature of the invention recited in amended independent claim 1 is the introduction of the intermediate washing process using alcohol to the old washing process. Such feature according to Applicant is novel even if the character of alcohol is already known.

This is not found persuasive for the reason that Nishi does utilize an intermediate washing in his process. Although this washing does not employ an alcohol (as appears in the instantly amended claim) the intermediate washing of Nishi is used for the same purpose, namely to remove the residues of a hydrocarbon employed in the first step and to provide the affinity to aqueous media that will be subsequently used. For this purpose Nishi uses detergents/emulsifiers. Sherman provides evidence that alcohols and, in

particular, isopropyl alcohol, are used as species of significantly large genus of emulsifiers/detergents in order to ensure the sufficient HLB (hydrophilic/lipophilic balance- in other words, dissolution in both aqueous and non-aqueous solution). Such analysis is set forth in MPEP § 2144.08.

10. The Declaration under 37 CFR 1.132 filed April 20, 2004 is insufficient to overcome the rejection of claim 1 based upon Nishi and Sherman as set forth in the last Office action because: Declaration Under 37 CFR 1.132 submitted herewith, compares the washing method of amended independent claim 1 with the method of Nishi. However, the reference to Sherman was used to show how the alcohols play the role of emulsifiers/detergents and how their lipophilic/hydrophilic balance (HLB) values effect the process. Resuming the above the old chemical postulate "like dissolves like" is applicable to the present case, and known not only to Applicant at the time the invention was made, but to all those skilled in the art.

In addition, Applicants' attention is also drawn to Nishi's explanation of the actions of emulsifier and detergent in col.1, lines 15-25.

Degreasing:

a) process for removing greasy stains by dipping the object to be washed in ethylene or a similar substance.

b) Substituting Water System

This is a process for preventing the greasy components (by dissolving them) of the above process of "a. degreasing" from entering a finish washing process as described below by dipping the object to be washed in an emulsifier.

c) Finish Washing

This is a process for removing a hydrophilic stain by dipping the object to be washed in a detergent.

d) Rinsing.

Thus, Nishi explains that emulsifier dissolves the components left from the treatment with lipophilic agent, and the lipophilic (aqueous) agent per se, and the detergent dissolves hydrophilic components, thus having the ability to dissolve aqueous solution.

Furthermore, Applicants attention is drawn to the dictionary definition of detergents, and emulsifiers, wherein both detergents and emulsifiers are embraced under the definition of surface active agents that reduce the surface tension when dissolved in water or water solutions and/or reduces the surface tension between two (non-aqueous) liquids. Resuming the above, alcohols, in particular, isopropyl alcohol are known to have high affinity to water and high dissolution ability for lipophilic solvents. Therefore, the selection of alcohol is prima facie obvious from the disclosure of Nishi in combination with Sherman.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Kornakov

Michael Kornakov
Examiner
Art Unit 1746

05/31/2004